

**IN THE UNITED STATES DISTRICT COURT
FOR THE EASTERN DISTRICT OF TEXAS
MARSHALL DIVISION**

THETA IP, LLC,

Plaintiff,

v.

SAMSUNG ELECTRONICS CO., LTD., and
SAMSUNG ELECTRONICS AMERICA, INC.,

Defendants.

C.A. No. 2:16-cv-00527-JRG-RSP

JURY TRIAL DEMANDED

**PLAINTIFF THETA IP, LLC'S
REPLY CLAIM CONSTRUCTION BRIEF**

Pursuant to the Court’s Amended Docket Control Order on March 23, 2017 (D.I. 55), Plaintiff Theta IP, LLC (“Theta”) hereby submits its Reply Claim Construction Brief.

I. PROPOSED CONSTRUCTIONS

A. ’330 Patent: “dynamically adjust[ed]”

Theta’s Proposed Construction	Plain and ordinary meaning - or, alternatively - “changing during operation”
Samsung’s Proposed Construction	“adjust[ed] a continuous manner, as opposed to discrete steps”

Defendants’ proposed construction would incorrectly exclude adjusting a value (*e.g.*, impedance) in discrete steps. In distinguishing Yamamoto, Theta argued that “Yamamoto seems to teach discrete gain adjustment during the preamble portion of the transmission by using the delays 48 and 50.” (D.I. 69, Ex. 5 at 27). The delays 48 and 50 are delays in time, and Fig. 3 shows that adjustment occurs at specific (discrete) times, rather than continuously. Thus, Theta’s arguments during prosecution of the ’728 patent were to distinguish “dynamically adjust[ing]” a value from adjusting a value at discrete points in time. Thus, Defendants’ attempt to limit this term to exclude discrete steps in value is unsupported.

In distinguishing Clark, Theta argued that “Tsividis uses no threshold; rather, the control adjusts dynamically the power dissipation as the received signal’s SNR varies.” (D.I. 69, Ex. 10 at 8). Theta further argued that “Clark teaches an on/off solution that is based on a threshold and therefore Clark does not dynamically respond but rather responds when a threshold is crossed. In other words, Clark does not teach a continuous behavior, commonly characterized as dynamic, and rather teaches away therefrom by teaching two-state solution, or discrete at best.” (*Id.* at 11 (emphasis added)). Thus, “dynamically” as used by Theta in this argument refers to making adjustments without reliance on a threshold. Theta’s comments note that “continuous behavior” is commonly characterized as dynamic; but this does not necessitate an understanding that “dynamic” must mean “continuous”.

Theta further argued that “Clark seems to teach adaptation between a lower current mode and a

higher current mode (see Col. 3 lines 26-57), which therefore teaches away from dynamically varying an impedance.” (D.I. 69, Ex. 8 at 9). However, this is not a disclaimer of a two-state solution, as is shown by Theta’s statement in the same amendment: “the Examiner admits that Clark fail[s] to teach dynamically changing an impedance. Regardless, nothing taught in Clark teaches any kind of change in impedance, including not increasing said impedance.” (*Id.* at 12). Thus, the Examiner acknowledged Clark as not teaching the claimed feature of “dynamically changing an impedance”, and Theta in its Response noted this admission, but pointed out that the distinction between the claim and Clark is not based on “dynamically” changing – but simply on making any change (i.e., based on the claimed term “changing” rather than the combined claimed terms “dynamically changing.”) Accordingly, Theta did not disclaim “dynamically adjust” from meaning discrete steps of the value being adjusted.

B. ‘330 Patent: “impedance”

Theta’s Proposed Construction	Plain and ordinary meaning - or, alternatively - “a value of electrical resistance, electrical reactance, or both”
Samsung’s Proposed Construction	“the total opposition (i.e., resistance and reactance) a circuit offers to the flow of alternating current at a given frequency”

Defendants’ definition of “impedance” is incomplete. The complete definition of impedance accounts for both resistance and reactance, but does not require that both resistance and reactance be present in every electrical component or circuit. In particular, when dealing with individual components, rather than complete circuits, it is quite common for the impedance of the component to include only resistance or reactance. For example, while the Wikipedia article states “impedance is defined as ‘ $Z = R + jX$ ’,” the article goes on to explain that for individual components, the impedance includes only the resistance or reactance of the component. Thus, for a resistor with value R , the impedance equals the resistance, $Z_R = R$, for an inductor with value L , the impedance equals the inductive reactance, $Z_L = j\omega L$, and for a capacitor with value C , the impedance equals the capacitive reactance, $Z_C = \frac{1}{j\omega C}$. (D.I. 69, Ex. 21).

In the common situation where the impedance includes only one component or type of component in a circuit, the impedance includes only resistance or reactance. Contrary to Defendants' assertion, the resulting impedance fully conforms to the Defendants' proffered definition of impedance, and yet does not include any reactance.

Likewise, nothing in the plain language of the claims requires the claimed "impedance" to always include both resistance and reactance. For example, the plain language of claim 29 does not limit an impedance only to circuits that include both resistors and reactive components, such as inductors, capacitors, or both. Rather, the claimed impedance may refer to circuits with either a resistor or reactive component. As described in Theta's Opening Claim Construction Brief, this is fully consistent with the usage in the specification.

C. '728 Patent: "a component in the receiver signal path"

Theta's Proposed Construction	Plain and ordinary meaning - or, alternatively - "an active or passive electronic device or circuit element in the receiver signal path"
Samsung's Proposed Construction	"a component through which the input signal passes"

Defendants' arguments are misleading in that Defendants first re-phrase the disputed language "a component in the receiver signal path" as "a component in the path of the received signal," and then advocate their proposed construction on this alternative phrasing rather than the actual language. (Defs.' Br. at 20). To be clear, the language in this instance does not recite "in the path of the received signal," and Defendants' arguments relying on such alternative language should be disregarded.

Concerning the statement "[w]hen a receiver is actively receiving a desired signal, each block in the signal path has at its input the desired signal as well as noise and possibly interfering signals" ('728 patent, col. 5, ll. 9-13 (emphasis added)), it is noted that the subsequent statement "[t]he desired signal is the useful, information-carrying portion of a received signal" (*Id.* (emphasis added)) makes clear that a portion of the input signal (*i.e.*, the "desired signal" *portion*) is received at the input of each block in the signal path, not the "input signal" itself. As such, Defendants are incorrect to suggest that these

statements suggest that the input signal must pass through each block.

Furthermore, contrary to Defendants' assertion, those disclosures in the specification concerning an upstream component (*e.g.*, a low noise amplifier) configured for receiving the signal, and having an output coupled to an input of a downstream component (*e.g.*, a mixer)¹ do not state that any of those components (*e.g.*, the low noise amplifier, the mixer, etc.) operate to pass the received input signal to subsequent downstream components. (*See* Defs.' Br. at 20). Indeed, there is no indication that the input signal received at the upstream component is the same signal received at the downstream component, or any further downstream component. In fact, the specification presents a number of examples wherein a downstream output signal differs from an upstream input signal. For example, relative to FIG. 4 of the '728 patent, it is explained that an input line 410 receives an input signal having a first spectrum (illustrated by elements 412, 414, 416), and that much of that input signal is filtered by the time it exits a filter 430 such that an output signal at the output line 460 has a different second spectrum (illustrated by elements 462, 464, 466). ('728 patent, FIG. 4 & col. 6, ll. 36-45, 57-59).

D. '728 Patent: "scaling . . . impedance"

Theta's Proposed Construction	Plain and ordinary meaning - or, alternatively - "varying a value of electrical resistance, electrical reactance, or both"
Samsung's Proposed Construction	"adjusting a load R and a capacitance C using the same factor"

Defendants admit that the specification of the '728 patent describes an **example** of scaling an impedance (the example shown in Fig. 6), then improperly attempt to limit the term "scaling . . . impedance" to that example. As discussed in Theta's opening claim construction brief, Figure 6 is an example of scaling impedance for a filter. Theta does not dispute that for a low pass filter such as that in Figure 6, impedance scaling is performed by doubling the value of the resistor and halving the value of the capacitor. However, Theta does dispute that the term "scaling . . . impedance" as used in claim 1 of

¹ See the '728 patent at 2:9-12; 2:19-23; 2:29-31; 2:41-44; 2:51-57 and 2:62-66.

the '728 patent is limited to this particular example. *See Gemstar-TV Guide Intern., Inc. v. Int'l Trade Comm'n*, 383 F.3d 1362 (Fed. Cir. 2004) (noting that the disclosure of a single embodiment does not allow the claims of a patent to be read restrictively to limit the claim to that embodiment).

If Defendants' construction was correct, then the claim would be limited to controlling the impedance of filters only. This is contrary to the plain language of the claims and the clear disclosure of the specification, as the specification describes controlling impedance not just for filters, but also mixers, amplifiers, and other circuits. ('728 patent, col. 8, ll. 7-24).

Further, as discussed in Section I.B above, the definition of impedance accounts for both resistance and reactance, but does not require that both resistance and reactance be present in every electrical component or circuit. Accordingly, scaling of an impedance does not require that both resistance and reactance be varied. Moreover, Defendants' proposed construction requires the impedances of at least **two** components, both a resistor and a capacitor, to be varied. However, claim 1 recites "scaling an impedance of **at least a** component." (emphasis added). Because the plain language of claim 1 allows for changing the impedance of a **single** component, not at least two components, Defendants' construction cannot be correct.

The papers cited by Defendants, whether intrinsic or extrinsic, all describe impedance scaling for the specific example of filter circuits, and thus add no information to the description in the patent which applies to multiple types of circuits, not only filter circuits.

E. '728 Patent: "interfering signals"

Theta's Proposed Construction	Plain and ordinary meaning - or, alternatively - "signals that interfere with the receipt of the received desired signal"
Samsung's Proposed Construction	"signals generated outside the transceiver by other transceivers or nearby electronic equipment that interfere with the receipt of the received desired signal"

F. '728 Patent: "interferer signal"

Theta's Proposed Construction	Plain and ordinary meaning - or, alternatively - "a signal that interferes with the receipt of the received desired signal"
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Samsung's Proposed Construction	"a signal generated outside the transceiver by other transceivers or nearby electronic equipment that interferes with the receipt of the received desired signal"
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Defendants appear to be in agreement with Theta's construction to the extent that an interfering signal is "a signal that interferes with the receipt of the received desired signal." However, Defendants dispute the sources of interfering signals, as allegedly being limited to sources external of the receiving transceiver. (Defs.' Br. at 21).

Theta does not dispute that examples are provided of interfering signals received from sources external of the transceiver. ('728 patent, col. 5, ll. 17-19). However, these are non-limiting examples, and the claims do not place any limitations on the sources of interfering signals. Defendants' constructions seek to rewrite Theta's claims to set forth such unclaimed limitations.

Defendants argue that their constructions are in line with *estoppel* in the prosecution history. (Defs.' Br. at 22-23). However, "[t]o invoke argument-based estoppel, the prosecution history must evince a clear and unmistakable surrender of subject matter." *Deering Precision Instruments, L.L.C. v. Vector Distrib. Sys.*, 347 F.3d 1314, 1326 (Fed. Cir. 2003) (citations omitted). The cited portions of the prosecution history do not clearly and unmistakably surrender subject matter. Specifically, Defendants reference three statements in the prosecution history of the '728 patent as allegedly conveying that the invention does not encompass the handling or addressing of interference from sources within the transceiver. (Defs.' Br. at 22-23; D.I. 69, Ex. 30, at 8; D.I. 69, Ex. 10, at 7-8; and D.I. 69, Ex. 30, at 7). However, when read in context, each of these cited statements explains only that the invention is capable of providing a functionality that the prior art is not capable of providing (e.g., handling external interference); but make no representation that the invention is otherwise incapable of also providing further functionalities that the prior art might also be capable of providing (e.g., handling internal interference). Stated otherwise, these cited statements merely speak to advantages of the present invention, without placing any limitations thereon. As such, these statements do not surrender subject

matter or otherwise invoke any *estoppel*.

G. '728 Patent: "substantially the desired signal with the interferer signal reduced by filtering from the input signal"

Theta's Proposed Construction	Plain and ordinary meaning-or, alternatively - "the useful, information-carrying portion of a received signal and the interferer signal, wherein the interferer signal has been reduced by a filter circuit from a level that the interferer signal had before the filter circuit"
Samsung's Proposed Construction	Indefinite

Defendants assert that the word "substantially" in this claim term creates a limitation on how much of the interferer signal is permitted to be present after filtering. (Defs' Br. at 24.) However, the claim does not contain a limit to the amount of reduction of the interferer signal due to filtering. Accordingly, the claim does meet the requirement to "inform those skilled in the art about the scope of the invention with reasonable certainty." *Nautilus, Inc. v. Biosig Instruments, Inc.*, 134 S. Ct. 2120, 2129 (2014).

Defendants assert that the word "substantially" creates indefiniteness. If so, then logically, removing the offending word should remove the indefiniteness. Removing the word "substantially" from the claim term yields "the desired signal with the interferer signal reduced by filtering from the input signal." This is just as clear as the term with the word "substantially," so adding the word to the term has not introduced any indefiniteness.

This claim term does not limit or describe how much of the interferer signal is permitted to be present after filtering, because this claim term merely identifies which signal in the receiver signal path is relevant, namely, the signal present after filtering has been performed. Later clauses of the claim require determining the relative strengths of the desired signal and the interferer signal and taking appropriate action based on whether the relative strengths have increased or decreased. ('728 patent, col. 13, l. 9 - col. 14, l. 3). There is clear guidance in the specification as to these determinations, which are actually claimed. (See e.g., '728 patent, col. 5, ll. 25-26, 33-52). As a result, it does not matter whether

the resulting signal is 80% desired signal and 20% interferer signal or 90% and 10% respectively. Thus, the claim term inform those skilled in the art with reasonable certainty that the particular amount of reduction of the interferer due to filtering is not within the scope of the invention.

Defendants' citations to the claims and specification (Defs' Br. at 24-27) are not relevant because the later clauses of claim 2 determine the relative strengths of the desired signal and the interferer signal. There is clear guidance in the specification as to these determinations, which are actually claimed. ('728 patent, col. 5, ll. 25-26, 33-52). This disclosure clarifies that the performance and power dissipation of the receiver can be adjusted according to whatever may be the relative levels of desired signal and interferer signal.

This claim term does not claim, and does not need to identify, any specific levels for the desired signal or interferer signal, and does not need to identify any specific reduction in the interferer signal by filtering because the parameters (the relative strength of the desired signal and the interferer signal) are claimed as being determined and utilized by other clauses of claim 2. Accordingly, this claim term is not indefinite and should be given Theta's proposed construction.

H. '728 Patent: "variably changing . . . impedance"

Theta's Proposed Construction	Plain and ordinary meaning - or, alternatively - "varying a value of electrical resistance, electrical reactance, or both"
Samsung's Proposed Construction	"adjusting a continuous manner, as opposed to discrete steps"

Defendants assert that Theta disclaimed the scope of this claim term during prosecution and did not revoke this disclaimer. Whether Theta's arguments during prosecution amounted to a disclaimer is discussed in Section I.A above. However, even if there was a disclaimer, Theta effectively revoked any such earlier disclaimers in the October 12, 2015 Amendment. In this amendment, Theta added new claims, including claim 176, which became claim 2 in the issued patent. Claim 176 included the language "variably changing an impedance" for the first time. Theta described that "it appears that the rejections of the claims are no longer directly applicable" to the new claims. This is intended to revoke

the effect of any prior argument since, if the prior art is no longer applicable, arguments regarding that prior art are no longer applicable. Likewise, the fact that Theta expressly introduced new language into the claims indicates that Theta intended the old rejections, and any arguments made thereto, to apply only to the old language, not the new language.

Theta then made statements about the prior art which support the view that Theta intended to revoke any earlier disclaimers. In particular, Theta characterized Clark as being of background interest only. Theta no longer intended to maintain claim limiting disclaimers over a reference that was of only background interest. Regarding Lee, Theta stated that “Lee does not dynamically change an impedance in the receive circuit path as asserted by the examiner.” Defendants omit the “subsequent explanatory argument” (Defs’ Br. at 9), but this subsequent argument is important. In this argument, Theta distinguished Lee not on the basis of the difference between discrete and continuous adjustment, but on the basis that Lee changed signal paths, not an impedance in a signal path. (D.I. 69, Ex. 11 at 7). Thus, Theta is making a new statement about the new claims, which is that “Lee is changing signal paths, not an impedance in a signal path,” and that “in Lee, no change in impedance is made while either signal path is being used.” (*Id.*) Theta intended these statements to be the final, and definitive, characterizations of the prior art relative to the new claims. Theta clearly considered any prior statements to no longer be applicable. Accordingly, if this new argument amounted to a disclaimer, it was a disclaimer only of changing signal paths, and was not a disclaimer of adjusting an impedance in a signal path in any way.

The amount of difference of the new claim language does not matter because Theta clearly informed the Examiner that the prior art was no longer applicable, and pointed out the features of the prior art that were applicable by distinguishing the new claims from certain aspects of Lee.

Defendants claim that the control lines for changing impedances are analog lines. It is true that the specification discloses that the control lines may be analog lines, but the specification clearly discloses that the control lines may also be logic signals. (’728 patent, col. 8, ll. 23-28).

I. '728 Patent: "at least a component in the receiver path"

Theta's Proposed Construction	Plain and ordinary meaning - or, alternatively - "an active or passive electronic device or circuit element in the receiver signal path"
Samsung's Proposed Construction	Indefinite

Defendants assert this phrase as indefinite as lacking antecedent basis for the term "the receiver path", such that a POSITA would not be able to reasonably ascertain the scope thereof. (Defs.' Br. at 29). Defendants further argue that the language "the receiver path" is not discernible from the specification because FIG. 1 displays "many different paths" and examples in the specification do not mention a "receiver path." (Defs.' Br. at 29-30).

These critiques are unavailing. Regarding definiteness in the context of antecedent basis defects, it has been held that "[w]hen the meaning of the claim would reasonably be understood by persons of ordinary skill when read in light of the specification, the claim is not subject to invalidity upon departure from the protocol of 'antecedent basis.'" *Energizer Holdings v. Int'l Trade Comm'n*, 435 F.3d 1366, 1370 (Fed. Cir. 2006). "[D]espite the absence of explicit antecedent basis, 'if the scope of a claim would be reasonably ascertainable by those skilled in the art, then the claim is not indefinite.'" *Id.* at 1370-71 (quoting *Bose Corp. v. JBL, Inc.*, 274 F.3d 1354, 1359 (Fed. Cir. 2001)).

Claim 1 has five occurrences of the term "path", each immediately preceded by the term "receiver signal." In the specification, the term "path" appears twenty-five times, each immediately preceded by the term "signal"; and several of these occurrences are presented in the context of an integrated circuit for receiving a signal and/or a transceiver. (*See* '728 patent, col. 2, ll. 7-13, 17-23, 27-31, 39-46, 49-57, 60-66; col. 11, ll. 25-43). Based on these occurrences in the claims and the specification, together with their knowledge in the relevant art, a POSITA would readily understand that "receiver path" refers to a "receiver *signal* path," such that they could reasonably ascertaining the scope of this language, and the claim as a whole. This understanding is further supported by the prosecution history, which is replete with discussions of "signal path" and "receiver signal path."

II. CONCLUSION

For the foregoing reasons, the Court should adopt Theta's proposed constructions.

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Respectfully submitted,

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CERTIFICATE OF SERVICE

The undersigned certifies that a true and correct copy of the foregoing document has been served on all counsel of record on May 2, 2017 via CM/ECF.

/s/ Edward A. Pennington
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